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REMARKS

The Office action dated September 21, 2004 and the cited references have been carefully considered.

Status of the Claims

Claims 21-35 and 40-49 are pending in the current prosecution.

Claim 49 is allowed. The Applicants wish to thank the Examiner for indicating that this claim is allowed.

Claims 21-25, 40, 41, and 45-47 are rejected under 35 U.S.C. § 102(e) as being anticipated by Graff et al. (U.S. Patent 6,522,067; hereinafter "Graff").

Claims 26, 42, 43, and 48 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Graff in view of Baldo et al. (U.S. Patent 6,097,147; hereinafter "Baldo"). Claims 27, 28, 32, and 33 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Graff in view of Wolk et al. (U.S. Patent 6,291,116; hereinafter "Wolk"). Claims 29-31 and 44 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Graff in view of Collins, III et al. (U.S. Patent 6,642,652; hereinafter "Collins"). Claim 34 is rejected under 35 U.S.C. § 103(a) as being unpatentable over Graff in view of Baldo, and further in view of Wolk. Claim 35 is are rejected under 35 U.S.C. § 103(a) as being unpatentable over Graff in view of Baldo, and further in view of Wolk and Collins. The Applicants respectfully traverse this rejection for the reasons set forth below.

Claim Rejection Under 35 U.S.C. § 102(e)

Claims 21-25, 40, 41, and 45-47 are rejected under 35 U.S.C. § 102(e) as being anticipated by Graff. The Applicants respectfully traverse this rejection because Graff does not disclose each and every element of each of claims 21-25, 40, 41, and 45-47.

"Anticipation requires the presence in a single prior art reference disclosure each and every element of the claimed invention, arranged as in the claim." *Lindemann*

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Maschinenfabrik GmbH v. American Hoist & Derrick Co., 221 U.S.P.Q. 481, 485 (Fed. Cir. 1984) (emphasis added). "The identical invention must be shown in as complete detail as is contained in the . . . claim." *Richardson v. Suzuki Motor Co.*, 9 U.S.P.Q.2d 1913, 1920 (Fed. Cir. 1989) (emphasis added). "[T]he [Examiner] must identify the elements of the claims, determine their meaning in light of the specification and prosecution history, and identify corresponding elements disclosed in the allegedly anticipating reference." *Lindemann Maschinenfabrik GmbH*, 221 U.S.P.Q. at 485 (Fed. Cir. 1984).

Graff discloses a barrier stack that consists of a plurality of separate layers, at least one of which is made of an inorganic material, and at least another one of which is made of an organic polymer. See; e.g., column 1, lines 60-61, 65-66; column 2, lines 7-18, 27-33. See also Figures 1-3. Graff's entire barrier stack, not his individual separate layers of organic or inorganic material, provides the diffusion barrier to oxygen and moisture. Graff stated, at column 6, lines 63:

"The intermediate polymer layers also decouple defects that exist in adjacent inorganic barrier layers, thus creating tortuous path for gas diffusion. . . . As can be seen from the data in Table 1, the barrier stacks used in the present invention provide exceptional environmental protection, which was previously unavailable with polymers."

Each one of Graff's barrier layer or polymer layer is made of a distinct material from the next layer, and a distinct interface separates the adjacent barrier layer and polymer layer. That Graff's layers are materially distinct and a clear demarcation exists between adjacent layers is evidenced by Graff's method of making each stack. Each layer is sequentially and subsequently formed on a previous layer. For example, Graff describes the manufacturing of his barrier stack at column 4, lines 42-54:

"These barrier stacks can be formed by depositing a layer of polymer . . . onto a substrate or previous layer. Preferably, an acrylate-containing monomer . . . is deposited and then polymerized in situ to form the polymer layer. The acrylate-containing polymer layer is then coated with a barrier layer. Another polymer layer is deposited onto the barrier layer. U.S. Pat. Nos. 5,440,446 and 5,725,909, which are incorporated herein by reference, describe methods of depositing thin film, barrier stacks." (emphasis added.)

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U.S. Patent 5,440,446, which is incorporated by reference by Graff, explicitly describes the manufacturing of Graff's multilayer barrier; for example, at column 4, lines 36-37:

"A layer of metal 24 is deposited over at least one of the acrylate layers. A third layer of polymerized acrylate 26 is formed over the layer of metal." (emphasis added.)

Thus, Graff's barrier stack has distinct interfaces between pure polymer and pure inorganic layers, where the composition changes abruptly, as a step function, from organic to inorganic, and vice versa.

The distinct layers, each of which has a distinct composition, thus forming distinct interfaces between such layers, are further evidenced by Graff's characterization of his stack as a set of layers of polymer/barrier/polymer. Column 5, lines 6-7. Furthermore, Graff consistently uses the term "stack" to characterize his diffusion-barrier structure. A term used in a patent bear a heavy presumption that it means what it says and has the ordinary meaning that would be attributed to that word by persons skilled in the relevant art. *Texas Digital Systems, Inc. v. Telegenix, Inc.*, 308 F.3d 1193, 1201 (Fed. Cir. 2002). The ordinary meaning of a stack is an orderly pile, a large quantity of number (Webster's New Collegiate Dictionary, 1979). Thus, Graff's stack consists of a large number of orderly arranged distinct layers. Nowhere in Graff's disclosure does he mean anything other than a stack consisting of distinct layers, each of which has a uniform composition.

In contradistinction, each of claims 21-25, 40, 41, and 45-47 recites a graded-composition coating, a composition of which varies substantially continuously across its thickness. The ordinary meaning of "continuous" is "marked by uninterrupted extension in space, time, or sequence" or "having the numerical difference between the value at a point and the value at any point in a sufficiently small neighborhood of the point arbitrarily small." Webster's New Collegiate Dictionary, 1979. The continuous composition of a coating of the present invention is illustrated by a chemical analysis shown in Fig. 7. There are no distinct planes across which the composition abruptly changes, as a step function, from organic to inorganic, and vice versa.

In addition the instant specification states, for example, in paragraph 33:

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"A barrier coating of the present invention may be made by depositing reaction or recombination products of reacting species onto a substrate or film. Varying the relative supply rates or changing the identities of the reacting species results in a coating that has a graded composition across its thickness. Thus, a coating of the present invention does not have distinct interfaces at which the composition of the coating changes abruptly." (emphasis added.)

or in paragraph 34:

"A graded composition of the coating is obtained by changing the compositions of the reactants fed into the reactor chamber during the deposition of reaction products to form the coating."

or in paragraph 42:

"The rates of the reactant gases were varied during deposition so that the composition of the coating varied continuously across its thickness."

Thus, the coating of claims 21-25, 40, 41, and 45-47 does not consist of a stack of distinct layers separated by distinct interfaces, as disclosed in Graff.

The Applicants respectfully traverse the Examiner's assertion that Graff discloses at column 2, lines 9-12, "continuously-varying composition across its thickness, as it is formed of a mixture of two or more types of materials."

Graff states, at column 2, lines 9-12:

"At least one of the first and second barrier layers preferably comprises a material selected from metal oxides, metal nitrides, metal carbides, metal oxynitrides, and combinations thereof."

First, this language does not automatically mean that a barrier layer always comprises two or more types of materials. Second, even if a barrier layer comprises two or more of the listed compounds, it does not necessarily mean the composition varies continuously across its thickness because the mixture composition can be constant across the thickness. The Examiner may not read extraneous limitations into a prior art disclosure unless such extraneous limitations can be proved to be inherent. And it is not inherent for a composition of a mixture to be varying continuously. The Applicants are puzzled as to how

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the Examiner can assert that Graff's composition of a barrier (inorganic) layer varies continuously given Graff's language.

In sum, Graff does not disclose either explicitly or inherently a coating the composition of which varies continuously across its thickness, as is recited in claims 21-25, 40, 41, and 45-47.

Thus, Graff does not disclose each and every element of each of claims 21-25, 40, 41, and 45-47, and therefore, Graff does not anticipate these claims.

Claim Rejection Under 35 U.S.C. § 103(a)

Claim 26, 42, 43, and 48 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Graff in view of Baldo. The Applicants respectfully traverse this rejection because a combination of Graff and Baldo does not teach or suggest all of the limitations of claim 26, 42, 43, and 48.

"To establish *prima facie* obviousness of a claimed invention, all the claim limitations must be taught or suggested by the prior art." M.P.E.P. § 2143.03, p. 2100-128 (8th ed., Rev. 1, Feb. 2003).

As pointed out above, Graff does not teach or suggest a coating, a composition of which varies substantially continuously across its thickness, as is recited in each of claims 26, 42, 43, and 48. Adding Baldo to show a reflective metal layer still does not provide all of the elements of each of claims 26, 42, 43, and 48.

Since a combination of Graff and Baldo does not teach or suggest all of the limitations of each of claims 26, 42, 43, and 48, these claims are patentable over Graff in view of Baldo under 35 U.S.C. § 103(a).

Claims 27, 28, 32, and 33 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Graff in view of Wolk.

As pointed out above, Graff does not teach or suggest a coating, a composition of which varies substantially continuously across its thickness, as is recited in each of claims

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27, 28, 32, and 33. Adding Wolk to show an organic layer of poly(N-vinylcarbazole) still does not provide all of the elements of each of claims 27, 28, 32, and 33. Furthermore, the Applicants respectfully point out that Wolk's poly(N-vinylcarbazole) functions as a hole transporting material, which is not the same function as in the Applicants' device.

Since a combination of Graff and Wolk does not teach or suggest all of the limitations of each of claims 27, 28, 32, and 33, these claims are patentable over Graff in view of Wolk under 35 U.S.C. § 103(a).

Claims 29-31 and 44 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Graff in view of Collins.

As pointed out above, Graff does not teach or suggest a coating, a composition of which varies substantially continuously across its thickness, as is recited in each of claims 29-31 and 44. Adding Collins to show that a phosphor can be used to change light color still does not provide all of the elements of each of claims 29-31 and 44.

Since a combination of Graff and Collins does not teach or suggest all of the limitations of each of claims 29-31 and 44, these claims are patentable over Graff in view of Wolk under 35 U.S.C. § 103(a).

Claim 34 is rejected under 35 U.S.C. § 103(a) as being unpatentable over Graff in view of Baldo, and further in view of Wolk.

As pointed out above, Graff does not teach or suggest a coating, a composition of which varies substantially continuously across its thickness, as is recited in claim 34. Adding Baldo to show a metal reflective layer and Wolk to show an organic layer of poly(N-vinylcarbazole) still does not provide all of the elements of this claim.

Since a combination of Graff, Baldo, and Wolk does not teach or suggest all of the limitations of claim 34, this claim is patentable over Graff in view of Baldo and Wolk under 35 U.S.C. § 103(a).

Claim 35 is are rejected under 35 U.S.C. § 103(a) as being unpatentable over Graff in view of Baldo, and further in view of Wolk and Collins.

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As pointed out above, Graff does not teach or suggest a coating, a composition of which varies substantially continuously across its thickness, as is recited in claim 35. Adding Baldo to show a metal reflective layer, Wolk to show an organic layer of poly(N-vinylcarbazole), and Collins to show a phosphor still does not provide all of the elements of this claim.

Since a combination of Graff, Baldo, Wolk, and Collins does not teach or suggest all of the limitations of claim 35, this claim is patentable over Graff in view of Baldo, Wolk, and Collins under 35 U.S.C. § 103(a).

In view of the above, it is submitted that the claims are patentable and in condition for allowance. Reconsideration of the rejection is requested. Allowance of claims at an early date is solicited. If the Examiner believes that a discussion of the instant invention relative to the prior art is helpful to advance the prosecution toward an allowance, she is invited to call the Applicants' Attorney at the telephone number shown below.

Respectfully submitted,



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